REMARKS

Following this response, claims 27-36 and 47-51 are pending in this application. Claims 1-26, 37-26, and 51 have been withdrawn by the Examiner. Claims 27-36 and 47-50 presently stand rejected. No claims are amended. In view of the discussion below, it is submitted that the application is now in condition for allowance.

Claim Rejections 35 U.S.C. § 102(b)

The Examiner has maintained the rejection of claims 27, 32-36, and 47-50 under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 4,687,662 (Schobel) for the reasons of record in the Office Action dated August 13, 2008. In particular, in the August 13, 2008 Office Action, the Examiner points to column 3, lines 10-12, and the abstract of Schobel, and states that Schobel discloses a method for oral administration of an effervescent composition in the form of tablets or powders including a therapeutic agent, a granulating agent, a microparticulate effervescent component and an effervescent system that dissolve rapidly in water to yield an effervescent solution containing a completely dissolved therapeutic agent. The Examiner further states that the granulating agent of Schobel causes slow disintegration of the therapeutic agent and release of gas (citing column 4, lines 17-28), and that the effervescent system includes compounds capable of reacting with carbonate containing materials to cause the release of carbon dioxide when contacted with sufficient water (citing column 5, lines 14-18 and lines 45 et seq.).

Following Applicants' response of January 13, 2009, the Examiner, in the present Office Action, supplements his reasoning for rejecting claims 27, 32-36, and 47-50 under 35 U.S.C. § 102(b) as anticipated by Schobel. In particular, the Examiner states that at page 5, lines 1-11, the present application describes that a first gas is generated by contact of a gas-dispersing component to erupt gas. Thus, the Examiner states that the component comprises water soluble ingredients (such as carbohydrates such as sugars). The Examiner states that Schobel also discloses carbohydrates such as sugars, and so these components would be porous enough to inherently absorb or entrap small amounts of inert gases such as air (that air being the "first gas" recited in the present claims).

Further, in the present Office Action, the Examiner states that the effervescent composition described by Schobel includes a granulating agent along with other additives (such as lubricants, antifoaming agents, flavoring agents, colorants, sweeteners, and glidants). Following this observation, the Examiner simply announces (at pages 3-4 of the Office Action) that the composition "may be formed into any desirable shape such as a tablet to render the composition to have an interior space to hold a first gas." Applicants respectfully disagree with the rejection under 35 U.S.C. § 102(b).

In particular, Applicants submit that Schobel does not teach any "matrix having at least one interior space with at least one first gas contained therein," as

recited in the presently pending claims. As described at column 2, lines 20-27 of Schobel, the composition of that reference includes (1) a preblended mixture of (a) a granulated therapeutic agent and (b) a component of an effervescent system; and (2) other components of the effervescent system. In the preblended mixture, the granulated therapeutic agent and the component of the effervescent system (which is described in Schobel as being a "microparticulate acid") are of roughly similar size (the granulated therapeutic agent being between 100-600 microns and the microparticulate acid being 50-600 microns).

The "microparticulate acids," described in Schobel, are capable of reacting with carbonate-containing materials to cause the release of carbon dioxide when contacted with a sufficient amount of water. As described above, in Schobel, a granulated therapeutic agent (of 100-600 microns) and microparticulate acids (of 50-600 microns) are admixed to form a preblended mixture. The microparticulate acids are one component of the effervescent system. The remainder of the effervescent system includes all the ingredients of a rapid-dissolving effervescent composition, except for the microparticulate acids as stated at column 5, lines 43-45. And in particular, at column 5, lines 45-64, Schobel describes that the remainder of that effervescent system uses carbonate-containing materials. The various components of the Schobel composition (the preblended mixture of therapeutic agent and microparticulate acid, and the carbonate-containing materials of the remainder of the effervescent system) can then

be formed into a desirable shape, such as a tablet, to render a final product.

In use, this tablet is added to an aqueous environment (such as water), causing the microparticulate acids to react with the carbonate-containing materials to release carbon dioxide. Thus, the discussion of a "gas" in Schobel is directed to this generation of carbon dioxide. Nowhere does Schobel describe a gas that is already disposed within an interior compartment (such as being entrapped within a bubble). Applicants thus submit that Schobel does not disclose a solid ingestible pharmaceutical composition including "a gas-dispersing component including a solid matrix having at least one interior space with at least one first gas contained therein," as is recited in independent claims 27 and 47 of the present application.

However, as described above, the Examiner is taking the position that the components of Schobel would be porous enough to inherently absorb or entrap small amounts of air, which would qualify as a "first gas." Applicants respectfully disagree.

First, there is no disclosure in Schobel of an interior space, such as a bubble. Paragraph [0024] of the specification states:

> "Suitable gas-dispersing components may be produced by dispersing the gas within a liquid, molten sugar, or other suitably dispersing liquid or medium, and then solidifying the dispersing medium *to form a bubble, which contains or 'entraps' the gas therein.* The resulting gas-dispersing component is generally referred to as a 'solid foam' (emphasis added)."

This "bubble" that "entraps the gas therein" is an example of the recitation of the matrix having "at least one interior space with at least one first gas contained therein," as recited by independent claims 27 and 47. As is well known to those of ordinary skill in the art, a "bubble" inherently includes an interior space. Indeed, the very fact that the specification recites that the bubble entraps the gas therein would require that there be an interior space. Finally, one common definition of a bubble is "a pocket formed in a solid by trapped air or gas, as during cooling" (see the American Heritage Dictionary, 3d Ed., 1997, p. 181).

An interior space, such as a bubble, that entraps a gas therein, is different from the "porosity" that the Examiner describes with respect to Schobel. "Porosity" is defined as the state or property of being porous, which is the state of being full of or having pores. And pores are defined as spaces that are not occupied by matter that allow the passage or absorption of fluids (see the American Heritage Dictionary, 3d Ed., 1997, p. 1064). One common example of an object that includes pores is a sponge, which pores allow the sponge to absorb and retain or release a liquid such as water. However, pores are not bubble-type structures that define an interior space to "entrap" a gas therein. To the contrary, pores are open to the surface of whatever composition exhibits the pores. This is not an interior space that is entrapping or containing a gas therein, such as a bubble.

Further, independent claims 27 and 47 generally recite that the gas is adapted to be released when the composition is combined with as little as 0.1 ml of water (as those claims teach that the aqueous vehicle can include 0.1 ml of water, but regardless, the gases will disperse and be generated if there is even only 0.1 ml of water -- an oligohydrous condition). Schobel, on the other hand, does not teach that subjecting its composition to an oligohydrous condition (i.e., a minimal water environment like applesauce) would lead to any explosion or effervescence. To that end, Schobel does describe that its composition can dissolve in water, but the only discussion of amounts is in the Examples, which list an amount of 200 ml of water (in each of Examples I, II, III, IV, and V -- see column 8, line 29; column 9, line 2; column 9, line 11; column 9, line 48; column 10, line 24; and column 10, line 64 of Schobel). 200 ml of water is substantially more than "0.1 ml" of water (recited in the claims), and certainly does not teach or suggest a composition that would dissolve, "pop," or explode (i.e., release the first gas) if contacted with as little as 0.1 ml of water, as is recited in independent claims 27 and 47.

In view of the above, Applicants respectfully request a withdrawal of the rejection of claims 27 and 47 as anticipated by Schobel. Further, as each of claims 32-36 and 48-50 ultimately depend from either independent claim 27 or independent claim 47, Applicants respectfully request a withdrawal of the rejection of claims 32-36 and 48-50 as anticipated by Schobel.

Claim Rejections 35 U.S.C. § 103

Further, the Examiner has rejected claims 27-36 and 47-50 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0235613 (First) in view of U.S. Patent No. 5,223,264 (Wehling). In particular, the Examiner states that (1) First discloses an oral administration form comprising an active ingredient and a pressurized gas, wherein the pressurized gas is trapped in cavities within a pharmaceutically acceptable material in a manner that allows its escape upon dissolution or shattering of the administration form (citing para. [0010] of First); (2) First discloses that the active ingredient may be an analgesic, an antipyretic agent, an anti-inflammatory agent, a vitamin, an expectorant, an antibiotic, an antihypertensive, etc. (citing para. [0015]); and (3) First discloses that the gas trapped in the cavities may be any pharmaceutically acceptable inert gas, such as carbon dioxide, nitrogen, air, helium, argon, and neon (citing para. [0017] of Schobel). The Examiner further states that First teaches that such an oral administration form may be popular with children who will like the popping sensation and will be more willing to take a popping administration form than one that does not create a popping sensation.

Thus, the Examiner states that First meets the claim limitation of an interior space entrapping a first gas therein, but does not include a gas-generating effervescent component. However, the Examiner points to Wehling as disclosing an oral pediatric dosage form comprising a mixture of at least one effervescent

disintegration agent, and a pediatrically effective amount of an active ingredient, wherein the mixture is present in the form of a compressed tablet. The Examiner therefore states that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the effervescent disintegration agent of Wehling into the First composition to aid in the rapid disintegration of the effervescent tablet. Applicants respectfully disagree.

As discussed above, the present application describes and claims a formulation that includes (1) a gas dispersing component, (2) a gas-generating effervescent component, and (3) a medicament. The formulation is placed in an aqueous vehicle, such as an aqueous food or beverage, which may contain a minimal amount of liquid, such as at least 0.1 ml of water. Upon contact with even a minimal amount of liquid, the dispersing component releases at least one first gas, and the gas-generating effervescent component reacts to produce at least one second gas, both of which are released into the vehicle. As the formulation breaks down in the vehicle, the medicament is also released, and the released first gas disperses the effervescence of the second gas to enhance distribution and dispersion of the medicament within the vehicle. The effervescing second gas enhances penetration of the medicament in the vehicle. The vehicle is then administered to the patient. This method of administering the medicament is particularly useful in pediatric and ostomy patients, for example, cancer patients with gastrostomies, ileostomies, jejunostomies, and colostomies. The

method provides for local delivery and dispersion of medicament, which is of great need in these patients, and has not previously been effectively provided. (See Declaration of Gilbert Gonzales, paragraph [0008]).

Prior to the presently claimed invention, many pharmaceutical formulations containing effervescent components have been proposed to enhance ingestion and/or absorption of active pharmaceutical ingredients. Many of these are listed in the Background section of the present application. And, Wehling itself describes a composition which only includes effervescent granules. However, Wehling, like all of these prior formulations, only includes effervescent components. Unlike the invention of the present application, none of them also include a gas-dispersing component to assist in the dispersal of the effervescent component and the medicament.

And Applicants note that this distinction is present in both pending independent claims. Independent claims 27 and 47 each recite a "pharmaceutical composition" comprising a "medicament," along with the gas-dispersing component and the gas-generating effervescent component. Thus, the gas-dispersing component and gas-generating effervescent component are used to disperse and distribute a medication in a vehicle to be administered to a patient in need. Thus, the claimed invention of the present application provides, for the first time, effervescence combined

with "explosion" (provided by the gas dispersing component) to disperse a medicament, and which can operate in a substance having a minimal amount of water.

The Examiner argues, however, that this invention is obvious because Wehling teaches effervescent granules, and First teaches preparing a gas-containing solid matrix. However, independent claims 27 and 47 generally recite that the gas is adapted to be released when the composition is combined with as little as 0.1 ml of water (as those claims teach that the aqueous vehicle can include 0.1 ml of water, but regardless the gases will disperse and be generated if there is even only 0.1 ml of water). Applicants submit that one of ordinary skill in the art would not think that subjecting the compositions of First and Wehling to an oligohydrous condition (i.e. a minimal water environment like apple sauce) would lead to explosion and effervescence ("explosion" referring to the release of compressed gas in popping rocks). To that end, neither First nor Wehling describes a composition that will "explode" in an oligohydrous condition including as little as 0.1 ml water (i.e., the release of the first gas recited in the claims).

As an initial matter, Applicants note that Wehling does not disclose any release of a first gas as recited in the claims. Wehling simply discloses an effervescent formulation including a medicament in tablet form, wherein that tablet also includes effervescing components. In particular, Wehling includes "effervescent disintegration agents," which include compounds that evolve a gas. As described at column 3, lines

10-17 of Wehling, the effervescent disintegration agent includes one acid and at least one base, the base being selected from the group consisting of carbonate salts, bicarbonate salts, and mixtures thereof. The acids and bases of the effervescent disintegration agent are water-activated materials. And thus, the composition of Wehling may be provided in a tablet form and added to an aqueous vehicle, such as water. When the tablet contacts the water, the acids and bases of the effervescent disintegration agents react to produce carbon dioxide gas. At column 5, lines 38-42, Wehling allows that an alternate gas, such as oxygen, can be evolved from reactants of the effervescent disintegration agents. However, nowhere does Wehling suggest that two separate gases are included in or generated by the composition of Wehling. Only the single gas (carbon dioxide or oxygen) generated by the effervescent disintegration agent of the composition of Wehling is present in Wehling. Thus, Wehling does not include both (1) a gas-dispersing component including a solid matrix having at least one first gas contained therein, and (2) a gas-generating effervescent component including components reactive with an aqueous vehicle to generate a second gas. In particular, Wehling does not include the solid matrix having at least a first gas contained therein. And so it is axiomatic that Wehling cannot disclose any release of a first gas in as little as 0.1 ml of water.

Further, First does not disclose any amounts of water or other liquids that are used with the oral administration forms it describes. The only place where First touches upon various modes of administration is in paragraph [0018], which states:

> "...it may be popular with children that will like the popping sensation and will be more willing to take a popping administration form than one that does not create a popping sensation. The escape of the gas does not only produce a pleasant sensation but may also stimulate saliva production, thereby providing additional saliva to aid dissolution in the mouth. Similarly, it may be used to enhance dissolution of tablets or powders in a drinking liquid. Such tablets may be useful for the elderly or swallow-problem population. It may be used in semi-solids, oils, suspensions or solid preparations to enhance disintegration or dissolution of the active ingredients either in the mouth or in the stomach or intestine."

Thus, First describes an oral administration form that is placed (1) directly into the oral cavity, (2) into a drinking liquid, or (3) into a semisolid, oil, suspension, or solid preparation. As to the first two categories, a composition that would dissolve in the mouth as a result of contact with the saliva would be in the presence of water (e.g., saliva) in an amount of more than 0.1 ml. Further, any drinking liquid would include more than 0.1 ml of liquid. And finally, when placed in a semisolid, oil, suspension, or solid preparation, First does not disclose that any release of the first gas occurs then. To the contrary, First states that this only allows an enhancement of disintegration or dissolution of the active ingredients once they have been placed into the mouth or in the stomach or intestine (where again, there would be more than 0.1 ml of liquid present).

Thus, neither First nor Wehling teaches or suggests a matrix having an interior compartment containing a first gas adapted to be released in as little as 0.1 ml of water, as recited in independent claims 27 and 47. Thus, even if the compositions of First and Wehling were combined (and Applicants do not acknowledge that a person of ordinary skill in the art would combine First and Wehling), they would not satisfy all limitations of independent claims 27 and 47.

In view of the above, Applicants submit that claims 27-36 and 47-50 are not rendered obvious by First in view of Wehling, and respectfully request a withdrawal of the rejection of same.

Conclusion

For the foregoing reasons, it is submitted that all claims are patentable, and a Notice of Allowance is respectfully requested.

Please consider this paper a Petition of Extension of Time of one month. A fee of $65.00 is believed due. Any deficiencies or credits necessary to complete this communication should be applied to Deposit Account No. 23-3000.

The Examiner is invited to contact the undersigned attorney with any questions or remaining issues.

Respectfully submitted,
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